

**PATENT CLAIMS**

1. A method for detecting identification media (IM) within the communication range (K-B) of an antenna (At) for transmitting and receiving RF signals of a read/write unit (WR) which operates in accordance with the principle of inductive coupling of an RF field in the MHz frequency band and which has a transmitting path (HFo) connected directly to the antenna,  
a receiving path (Dem) connected directly to the antenna,  
a circuit (S(HF)) for RF communication with a standard transmitting power (P-HF) or less, and a logical circuit (Pr) for evaluating a communication between the read/write unit (WR) and an identification medium (IM), characterized in that  
a short polling signal (ASo), which contains a number of fundamental oscillations of the RF field, is periodically emitted with the standard transmitting power (P-HF) via the transmitting path (HFo) and the antenna (At) (1),  
that during the emission of the polling signal (ASo), a return signal (ASi) with a number of fundamental oscillations of the RF field is detected at the antenna (At) (2),  
then the return signal (ASi) is compared with a reference signal (RS) (3),  
and then a communication signal (KS) is emitted for detecting an identification medium (IM) (4) if the return signal (ASi) differs from the reference signal (RS) (3-2).
2. A method according to claim 1, characterized in that the polling signal (ASo) is shorter by at least two orders of magnitude than the communication signal (KS).
3. A method according to claim 1, characterized in that the detection (2) of the return signal (ASi) is effected via the receiving path (Dem).
4. A method according to claim 1, characterized in that the detection (2) of the return signal (ASi) is effected via a separate detection path (Det).

5. A method according to claim 1, characterized in that the comparison (3) of return signal (AS<sub>i</sub>) and reference signal (RS) is effected by the logical circuit (Pr).
- 5 6. A method according to claim 1, characterized in that the comparison (3) of return signal (AS<sub>i</sub>) and reference signal (RS) is effected in a separate logical circuit (Pr(AS)).
7. A method according to claim 1, characterized in that the comparison (3) of return signal (AS<sub>i</sub>) and reference signal (RS) is effected by means of a separate discrete circuit (dS(AS)).
- 10 8. A method according to claim 1, characterized in that the return signal (AS<sub>i</sub>(p)) of the current measuring period (p) is used as reference signal (RS(p + 1)) for the next measuring period (p + 1) (6).
- 15 9. A method according to claim 1, characterized in that the reference signal (RS) is changed over time in accordance with a stored reference signal profile (RSP(t)) (6).
- 20 10. A method according to claim 1, characterized in that the reference signal (RS(t)) is self-adapting over time (6).
- 25 11. A method according to claim 1, characterized in that the amplitudes (A) of return signal (AS<sub>i</sub>) and reference signal (RS) are compared (3).
12. A method according to claim 1, characterized in that the pulse widths (L) of return signal (AS<sub>i</sub>) and reference signal (RS) are compared (3).
- 30 13. A method according to claim 1, characterized in that the emission (4) of a communication signal (KS) takes place if the return signal (AS<sub>i</sub>) is below the reference signal (RS) by a defined threshold value (X) (3-2):  
$$AS_i < RS - X.$$
- 35 14. A method according to claim 1, characterized in that the comparison (3) of return signal (AS<sub>i</sub>) and reference signal (RS) is effected by analog means via a comparator (Co) of a discrete circuit (dS(AS)).

- 5 15. A method according to claim 1, characterized in that the comparison (3) of return signal (ASi) and reference signal (RS), after an A/D conversion, is effected by digital means by the logical circuit (Pr) or by a separate logical circuit (Pr(AS)).
16. A method according to claim 13, characterized in that the threshold value (X) is defined by a comparator (Co) or its drive system.
- 10 17. A method according to claim 1, characterized in that there is a defined time delay (dt) between the beginning of the emission (1) of a polling signal (ASo) and the detection (2) of the return signal (ASi).
- 15 18. A method according to claim 1, characterized in that the return signal (ASi) contains at least 10 fundamental oscillations of the RF field.
19. A method according to claim 1, characterized in that the logical circuit (Pr) is set from an idle mode (Is) into an operating mode (Ib) before transmitting the polling signal (ASo).
- 20 20. A method according to claim 1, characterized in that the communication signal (KS) is emitted with a transmitting power (P-HFr) reduced by at least a factor of 2.
- 25 21. A method according to claim 1, characterized in that the read/write unit (WR) adaptively determines in a self-learning manner whether the communication signal (KS) is emitted with standard transmitting power (P-HF) or with reduced transmitting power (P-HFr).
- 30 22. A read/write unit for detecting identification media (IM) within the communication range (K-B) of an antenna (At) for transmitting and receiving RF signals of the read/write unit (WR) which operates in accordance with the principle of inductive coupling of an RF field in the MHz frequency band and which has a transmitting path (HFo) connected directly to the antenna,
- 35 a receiving path (Dem) connected directly to the antenna,

a circuit (S(HF)) for RF communication with a standard transmitting power (P-HF) or less, and a logical circuit (Pr) for evaluating a communication between the read/write unit (WR) and an identification medium (IM), characterized in that

5 a short polling signal (ASo), which contains a number of fundamental oscillations of the RF field, can be periodically emitted with the standard transmitting power (P-HF) via the transmitting path (HFO) and the antenna (At) (1),

10 and during the emission of the polling signal (ASo), a return signal (ASi) with a number of fundamental oscillations of the RF field can be detected at the antenna (At) (2),

then the return signal (ASi) can be compared with a reference signal (RS) (3),

15 and then a communication signal (KS) can be emitted for detecting an identification medium (IM) (4) if the return signal (ASi) differs from the reference signal (RS) (3-2).